

DOCKET NO. 132258 CMI-0001-100**PATENT**

Serial No. 10/735,995

Response to Office Action dated June 23, 2004

Listing of the Claims

This listing will replace all prior versions, and listings, of claims in the application:

Claim 1 (Original) A railroad frog apparatus for connecting intersecting rail lines comprising:

a body having flangeways that intersect; and

at least one connection plug extending from the body for connecting to a running rail;

the at least one connection plug having a cross-sectional profile that is substantially identical to a cross-sectional profile of the running rail.

Claim 2 (Original) The railroad frog apparatus of claim 1 comprising first, second, third, and fourth connection plugs extending from the body, each connection plug having a cross sectional profile that is substantially identical to a cross sectional profile of the running rail to which that connection plug will connect.

Claim 3 (Currently Amended) ~~A~~ The railroad frog apparatus of claim 2 for connecting intersecting rail lines comprising:

a body having flangeways that intersect;

first, second, third, and fourth connection plugs extending from the body for connecting to a running rail, each connection plug having a cross sectional profile that is substantially identical to a cross sectional profile of the running rail to which that connection plug will connect; and

wherein the first and third connection plugs have cross sectional profiles for connecting a first type of running rail and wherein the second and fourth connection plugs have cross sectional profiles for connecting a second type of running rail.

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Claim 4 (Original) The railroad frog apparatus of claim 1 wherein the at least one connection plug extends from the body a distance that allows the running rail to be connect by a thermite weld.

Claim 5 (Original) The railroad frog apparatus of claim 1 wherein the apparatus is constructed of rail steel.

Claim 6 (Original) The railroad frog apparatus of claim 1 wherein the apparatus is formed from a single piece of material.

Claim 7 (Original) The railroad frog apparatus of claim 6 wherein the apparatus is formed by machining.

Claim 8 (Original) The railroad frog apparatus of claim 1 wherein at least one of the flangeways has a floor having a convex portion defined by an arc extending between first and second points, the first and second points being at flangeway depths so as to avoid contact with a flange of train wheel passing through the flangeway.

Claim 9 (Original) The railroad frog apparatus of claim 8 wherein the arc is of approximately constant radius.

Claim 10 (Currently Amended) A The railroad frog apparatus of claim 1 for connecting intersecting rail lines comprising:

a body having flangeways that intersect;

at least one connection plug extending from the body for connecting to a running rail;

the at least one connection plug having a cross-sectional profile that is substantially identical to a cross-sectional profile of the running rail; and

wherein at least one of the flangeways has a floor surface having a convex cross-section ~~portion~~ defined by a first arc, a second arc and a third arc; the first arc extending from a first point to a second point; the second arc extending from the second point to a third point; the third arc extending from the third point to a fourth point; the first and fourth points being at flangeway

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depths so as to avoid contact with a flange of a train wheel passing through the flangeway; wherein upon the train wheel entering the flangeway, the flange of the train wheel initially contacts the floor at ~~a point on~~ the first arc; and wherein upon the train wheel exiting the flangeway, the flange of the train wheel disengages the floor at ~~a point on~~ the third arc.

Claim 11 (Original) The railroad frog apparatus of claim 10 wherein the first arc, the second arc, and third arc are all of approximately constant radius.

Claim 12 (Currently Amended) A railroad frog apparatus for connecting intersecting rail lines comprising:

a body having two flangeways that intersect;

at least one connection plug extending from the body for connecting to a running rail, the at least one connection plug having a cross-sectional profile that is substantially identical to a cross-sectional profile of the running rail;

the at least one connection plug extending from the body a distance that allows the running rail to connect to at least one connection plug by a thermite weld;

wherein the apparatus is machined from a single piece of rail steel; and

wherein at least one of the flangeways has a floor surface having a convex cross-section ~~portion~~ defined by a first arc of constant radius, a second arc of constant radius and a third arc of constant radius; the first arc extending from a first point to a second point; the second arc extending from the second point to a third point; the third arc extending from the third point to a fourth point; the first and fourth points being at flangeway depths so as to avoid contact with a flange of a train wheel passing through the flangeway; wherein upon the train wheel entering the flangeway, the flange of the train wheel initially contacts the floor at ~~a point on~~ the first arc; and wherein upon the train wheel exiting the flangeway, the flange of the train wheel disengages the floor at ~~a point on~~ the third arc.

Claim 13 (Cancelled)

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Claim 14 (Currently Amended) A railroad frog apparatus for connecting intersecting rail lines comprising:

a body having flangeways that intersect; and

a plurality of connection plugs extending from the body for connecting to a running rail;

wherein at least one of the flangeways has a floor surface having a convex cross-section ~~portion~~ defined by a first arc, a second arc and a third arc; the first arc extending from a first point to a second point; the second arc extending from the second point to a third point; the third arc extending from the third point to a fourth point; the first and fourth points being at flangeway depths so as to avoid contact with a flange of train wheel passing through the flangeway; wherein upon the train wheel entering the flangeway, the flange of the train wheel initially contacts the floor at ~~a point on~~ the first arc; and wherein upon the train wheel exiting the flangeway, the flange of the train wheel disengages the floor at ~~a point on~~ the third arc.

Claim 15 (Original) A method of connecting two running rails for intersection in a railroad comprising:

providing a railroad frog apparatus having a body with two intersecting flangeways and four connection plugs extending from the body, each of the connection plugs having cross-sectional profiles that are substantially identical to a cross-sectional profile of a corresponding running rail to which the connection plug is to be connected;

butting the running rails against the corresponding connection plug; and

welding each running rail to the connection plug it is butted against.

Claim 16 (Original) The method of claim 15 wherein the welding step is a thermite weld.

Claim 17 (Original) The method of claim 15 wherein the railroad frog apparatus is machined from a single piece of rail steel.

Claim 18 (Currently Amended) A The method of claim 15 of connecting two running rails for intersection in a railroad comprising:

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providing a railroad frog apparatus having a body with two intersecting flangeways and four connection plugs extending from the body, each of the connection plugs having cross-sectional profiles that are substantially identical to a cross-sectional profile of a corresponding running rail to which the connection plug is to be connected;

butting the running rails against the corresponding connection plug; and

welding each running rail to the corresponding connection plug;

wherein at least one of the flangeways of the railroad frog apparatus has a floor surface having a convex cross-section ~~portion~~ defined by a first arc of constant radius, a second arc of constant radius and a third arc of constant radius; the first arc extending from a first point to a second point; the second arc extending from the second point to a third point; the third arc extending from the third point to a fourth point; the first and fourth points being at flangeway depths so as to avoid contact with a flange of train wheel passing through the flangeway; wherein upon the train wheel entering the flangeway, the flange of the train wheel initially contacts the floor at ~~a point on~~ the first arc; and wherein upon the train wheel exiting the flangeway, the flange of the train wheel disengages the floor at ~~a point on~~ the third arc.